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ABSTRACT OF THE DISCLOSURE

A first texture mapping unit generates texture coordinates and associated Red, Blue, Green (RGB) values in response to coordinates received from a rasterizer. The first texture mapping unit makes use of compressed texture mipmaps to reduce memory storage and bandwidth requirements. The compressed texture maps may be generated by a compression system employing principles of Block Truncation Coding (BTC) and Color Cell Compression (CCC). A second texture mapping unit generates texture coordinates and associated RGB values in response to coordinates received from a rasterizer. The second texture mapping unit includes a memory organization allowing two mipmap levels to be retrieved in a single access, and 8-port Color Lookup Table (CLUT), a trilinear interpolator and a video port. A footprint assembly system maps textures onto surfaces by approximating the projection of a pixel onto a texture by a number of square mipmapped texels. The second texture mapping unit also performs environment mapping, reflectance mapping and detail maps.